

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. These amendments introduce no new matter and support for the amendment is replete throughout the specification and claims as originally filed. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter, or agreement with any objection or rejection of record.

LISTING OF CLAIMS:

1 (Currently Amended). A receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor, said receptor-specific nanocontainer comprising:

a liposome having an exterior surface and an internal compartment; a gene that encodes a short hairpin RNA, said gene being located within the internal compartment of said liposome;

a plurality of receptor targeting agents that are capable of targeting said receptor; and

a plurality of conjugation agents, wherein each targeting agent is connected to the exterior surface of said liposome via at least one of said conjugation agents,

wherein said gene is expressed in vivo in the mammalian cell following intravenous administration of the nanocontainer to a mammal, and wherein a short hairpin RNA is produced in vivo in the mammalian cell of the mammal.

2 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein said short hairpin RNA comprises a nucleotide sequence that is antisense to at least a portion of an mRNA selected from the group consisting of: an mRNAs encoding the human epidermal growth factor receptor, an mRNA encoding a mutant EGFR, an mRNA encoding a mutant HER2, an mRNA encoding a mutant HER3, an mRNA encoding a mutant HER4, an mRNA encoding a mutant fibroblast growth factor receptor (FGFR), an mRNA encoding a mutant platelet derived growth factor receptor (PDGFR), an mRNA

encoding a mutant insulin-like growth factor receptor-1 (IGFR1), an mRNA encoding a mutant transforming growth factor α (TGF- α), an mRNA encoding a mutant vascular endothelial growth factor (VEGF) or its receptor, VEGFR, an mRNA encoding an altered protein kinase, an mRNA encoding Bcr-Abl, an mRNA encoding c-Met, an mRNA encoding c-Kit, an mRNA encoding ras, an mRNA encoding raf, and an mRNA encoding CdKs.

3 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 2, wherein said short hairpin RNA comprises a nucleotide sequence that is antisense to a portion of human epidermal growth factor receptor mRNA, said human epidermal growth factor receptor mRNA comprising a nucleotide sequence comprising nucleotides 1 to 5532 of SEQ ID NO:21.

4 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 3, wherein said short hairpin RNA comprises a nucleotide sequence that is antisense to a portion of said human epidermal growth factor receptor mRNA that is located between nucleotides 2300 and 3800 of SEQ ID NO:21.

5 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 4 wherein said portion of said human epidermal growth factor receptor mRNA is located between nucleotides 2500 and 3000 of SEQ ID NO:21.

6 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 5, wherein said portion of said human epidermal growth factor receptor mRNA is located between nucleotides 2500 and 2600 of SEQ ID NO:21.

7 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein said liposome exterior surface defines a sphere having a diameter of less than 200 nanometers.

8 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein between 5 and 500 receptor-targeting agents are conjugated to the exterior surface of said liposome.

9 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein said conjugation agent is selected from the group consisting of: polyethyleneglycol, sphingomyelin and an organic polymer.

10 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 9, wherein the molecular weight of said conjugation agent is between 1000 and 50,000 Daltons.

11 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein from 100 to 10,000 conjugation agents are attached to the exterior surface of said liposome.

12 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein said targeting agents are capable of targeting target a receptor located on a solid tumor.

13 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 12, wherein said solid tumor is selected from the group consisting of: brain tumors, liver tumors, lung tumors, spleen tumors, breast tumors, kidney tumors, prostate tumors, ovary tumors, eye tumors, gastrointestinal tumors, bone tumors, blood tumors, endocrine tumors, skin tumors, and lymph node tumors.

14 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 13, wherein said solid tumor is a brain tumor.

15 (Currently Amended). The receptor-specific nanocontainer for delivering a gene encoding short hairpin RNA to a mammalian cell having a receptor according to claim 1, wherein said targeting agent targets a receptor selected from the group consisting of: an insulin receptor, a transferrin receptor, an insulin-like growth factor receptor, a leptin receptor, and a low density lipoprotein receptor fibroblast growth factor receptor.

16 (Previously Presented). A composition comprising the receptor-specific nanocontainer according to claim 1, and a pharmaceutically acceptable carrier for said receptor-specific nanocontainer.

17 (Currently Amended). A composition comprising the receptor-specific nanocontainer according to claim 16, wherein the short hairpin RNA is expressible in a cell of an animal.

18-32 (Cancelled).

33 (New). The receptor-specific nanocontainer of claim 1, wherein the mammalian cell is a rodent or primate cell and the gene is expressed in an organ of a rodent or primate after intravenous administration of the nanocontainer.

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34 (New) The receptor-specific nanocontainer of claim 1, wherein expression of the short hairpin RNA in the mammalian cell in the mammal inhibits expression of an endogenous gene of the cell.